

# Partner Solution Brief

2nd Generation Intel® Xeon® Scalable processors  
Intel® Optane™ persistent memory  
Intel® Optane™ SSDs



## Reduce Latency and Grow Capacity with Dell EMC VxRail and Intel® Optane™ Technology

### Challenge

Enterprises are looking for cost-effective ways to modernize legacy infrastructure and solve data-management problems. They want to simplify the path to cloud computing with infrastructure that can scale quickly to meet rapidly evolving business-transformation needs. But the cost and complexity of constantly evaluating, testing, implementing, and supporting new technologies to meet these needs can be a never-ending burden.

### Solution

Many organizations are turning to hyperconverged infrastructure (HCI) as a way to combine compute, storage, and networking into one simple and scalable system. HCI solutions are a good fit for emerging technologies, such as AI and analytics, and for traditional workloads, including real-time collaboration, database processing, testing and development, enterprise resource planning (ERP), and virtual desktop infrastructure (VDI).

Dell EMC VxRail includes 2nd Generation Intel® Xeon® Scalable processors, Intel® Optane™ persistent memory (PMem), and Intel® Optane™ SSDs, and is the only fully integrated, preconfigured, and pre-tested HCI that is jointly engineered with VMware.<sup>1</sup>



### About Dell Technologies

Dell Technologies helps organizations and individuals build their digital futures and transform how they work, live, and play. The company provides customers with the industry's broadest and most innovative technology and services portfolio for the data era.



61%

Higher TPM and NOPM\*

59%

Lower latency

22%

More IOPS<sup>†</sup>

Enterprise Strategy Group (ESG) testing found that Intel® Optane™ SSDs not only enhance the performance of business-critical workloads, but they also enable VxRail to support multiple, mixed workloads in the same cluster with reduced impact.<sup>2</sup>

*"ESG testing validated that Dell EMC VxRail with Intel Optane SSDs provides the high performance and low latency that business-critical, virtualized workloads demand. The consistency of performance over time was particularly notable."*

— Enterprise Strategy Group (ESG)<sup>2</sup>

### Benefits

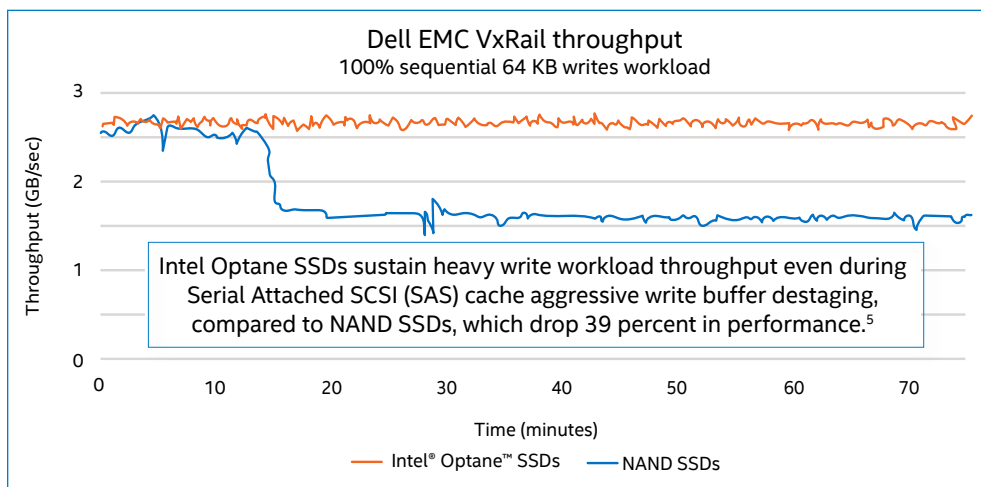
Dell EMC VxRail nodes are self-contained building blocks that make it quick and easy to build high-performance HCI solutions for VMware software.

- **Turnkey HCI systems** are fast and easy to install, scale, and upgrade. Virtual machines (VMs) can be up and running on the new hardware in just minutes. VxRail can be deployed as an appliance or as a fully integrated rack.
- **HCI "in a box"** offers lower hardware and software support costs, and operating costs are up to 52 percent lower over five years, compared to refreshing a legacy environment.<sup>3</sup>

Intel™ Optane™ technology offers performance and scalability, while reducing total cost of ownership (TCO).

- **Intel Optane PMem** offers high-performance intelligence, data persistence, and higher capacity than DRAM at a lower cost.
- **Intel Optane SSDs** accelerate applications with fast caching and storage, which increases scale per server and reduces costs for latency-sensitive workloads.<sup>2</sup>

<sup>†</sup> TPM: Transactions per minute. NOPM: New orders per minute. IOPS: Input/output operations per second.



### Why Intel Optane Persistent Memory?

Intel Optane PMem runs at near-DRAM speeds, has higher storage density than DRAM, and is more affordable per terabyte of memory than DRAM.

Servers can now be configured with more than 24 terabytes of persistent memory, which is ideal for database management systems (DBMS), such as SAP HANA and Microsoft SQL Server, helping to lower TCO (reducing infrastructure cost and complexity with a lower server count and a smaller data center footprint), increase database capacity, and improve CPU, memory, and storage utilization.

### Why Intel Optane SSDs?

Intel Optane SSDs provide the exceptional combination of low latency, high endurance, and consistent responsiveness—even under heavy loads. Intel Optane SSDs can read and write simultaneously, which differentiates them from even the fastest NAND SSDs.

### Choose a Dell EMC VxRail System with Intel Optane Technology

VxRail P Series, E Series, and G Series systems come configured with 375 GB of fast cache using an Intel Optane SSD with NVMe Express (NVMe).

The VxRail E560, with Intel Optane PMem, is a low-profile node that can be used for a wide range of use cases, including AI and machine learning (ML). These entry-level nodes enable clusters to optimize storage and compute resources in a small footprint, with flexibility to expand.

The VxRail P580N all-NVMe four-socket (4S) platform delivers 2x the CPU and up to 5x the memory capacity per system over the prior generation.<sup>4</sup>

The VxRail P570N includes Intel Optane PMem to support higher VM and workload densities and accelerated performance for modern databases and applications.

#### Learn more

- Dell Technologies
- Dell EMC VxRail
- Intel Optane SSDs
- Intel Optane PMem
- ESG paper on VxRail with Intel Optane SSDs



<sup>1</sup> Dell Technologies. "Dell EMC VxRail Hyperconverged Infrastructure." [delltechnologies.com/en-us/converged-infrastructure/vxrail/index.htm](https://delltechnologies.com/en-us/converged-infrastructure/vxrail/index.htm).

<sup>2</sup> ESG. "Dell EMC VxRail with Intel Xeon Scalable Processors and Intel Optane SSDs." Commissioned by Dell Technologies. August 2019. [dell.com/resources/en-us/asset/white-papers/products/converged-infrastructure/esg-technical-validation-dell-emc-vxrail-with-intel-optane.pdf](https://dell.com/resources/en-us/asset/white-papers/products/converged-infrastructure/esg-technical-validation-dell-emc-vxrail-with-intel-optane.pdf).

<sup>3</sup> IDC. "Delivering Efficient Business Expansion with Dell EMC VMware-Based HCI." Sponsored by Dell Technologies. October 2018. [dell.com/resources/en-be/collaterals/unauth/analyst-reports/idc-delivering-efficient-business-expansion-with-dell-emc-vmware-based-hci.pdf](https://dell.com/resources/en-be/collaterals/unauth/analyst-reports/idc-delivering-efficient-business-expansion-with-dell-emc-vmware-based-hci.pdf).

<sup>4</sup> Dell Technologies has the fastest-growing HCI system among the top three brands. Source: Dell Technologies. "Expand HCI Possibilities with New VxRail Automation, Analytics and Workload Support." November 2019. <https://blog.dell.com/en-us/expand-hci-new-vxrail-automation-analytics-workload-support/>. The VxRail P580N with Intel® Optane™ PMem offers 4 CPUs and 15TB, compared to previous generation VxRail with DRAM that offers 2 CPUs and 3TB with DRAM, resulting in 2x the CPU and up to 5x the memory capacity.

<sup>5</sup> ESG ran a 100 percent sequential 64 KB workload with a 1.2 TB working set per node for 75 minutes. Dell EMC VxRail with Intel Optane SSDs sustained heavy write workload throughput—even during aggressive cache destaging, where Serial-Attached SCSI (SAS) SSD performance dropped by 39 percent and stayed there for the remaining hour of the test. Source: ESG. "Dell EMC VxRail with Intel Xeon Scalable Processors and Intel Optane SSDs." Commissioned by Dell Technologies. August 2019. [dell.com/resources/en-us/asset/white-papers/products/converged-infrastructure/esg-technical-validation-dell-emc-vxrail-with-intel-optane.pdf](https://dell.com/resources/en-us/asset/white-papers/products/converged-infrastructure/esg-technical-validation-dell-emc-vxrail-with-intel-optane.pdf).

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit [www.intel.com/benchmarks](https://www.intel.com/benchmarks).

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available security updates. See backup for configuration details. **No product or component can be absolutely secure.**

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